

AMENDMENTS TO THE CLAIMS:

Claim 1. (Currently amended) A cross joint comprising:

a cross shaft member comprising:

four shafts each comprising a neck portion and a race portion; and

shoulder portions between adjacent neck portions;

rolling members adapted to rotate on the race portions; and

bearing cups fitted to the respective shafts via the rolling members,

~~wherein each of the shoulder portions comprise a round-shaped section in a section~~

~~including an axis center of the shaft;~~

wherein the round-shaped section has a center of curvature at an outer side of the cross shaft member,

wherein the round-shaped section does not include a concave angled corner,

wherein the shoulder portions are subjected to roller burnishing for increasing a hardness of each surface of the shoulder portions and for increasing a residual compressive stress immediately below each of said surfaces, and

wherein a residual compressive stress at a depth of up to at least 0.3 mm from each of surface of the shoulder portions subjected to roller burnishing is larger than a residual compressive stress at the deeper portions thereof.

Claim 2. (Currently amended) The cross joint according to claim 1, wherein a race portion formed on at least one of the a bearing cups cup is subjected to roller burnishing.

Claim 3. (Currently amended) The cross joint according to claim 51 ‡, wherein a

residual compressive stress at a depth of approximately 0.3 mm from each of surfaces of the shoulder portions subjected to the roller burnishing is equal to or larger than 800 MPa.

Claim 4. (Previously presented) The cross joint according to claim 1, wherein the cross shaft member comprises a carbon steel.

Claims 5-10. (Canceled).

Claim 11. (Previously presented) The cross joint of claim 1, wherein at least one of said rolling members comprises a cylindrical roller.

Claim 12. (Previously presented) The cross joint of claim 1, wherein at least one of said rolling members comprises a needle roller.

Claim 13. (Currently amended) The cross joint of claim 1, wherein ~~the roller burnishing of the shoulder increases a surface hardness of the shoulder and at least one of said shoulder portions comprises a hardness approximately equal to or larger than Hv700 from a surface to at least a depth of approximately 0.2 millimeters.~~

Claim 14. (Currently amended) The cross joint of claim 13, wherein at least one of said shoulder portions comprises a hardness approximately equal to or larger than Hv700 from a surface to up to ~~at least~~ a depth of approximately 0.4 millimeters.

Claims 15-39.

Claim 40. (Previously presented) The cross joint of claim 4, wherein the carbon steel comprises a carbon content equal to or larger than 0.42 % by weight.

Claim 41. (Previously presented) The cross joint of claim 1, wherein the bearing cups comprise a carbon steel.

Claim 42. (Previously presented) The cross joint of claim 41, wherein the carbon steel comprises a carbon content equal to or larger than 0.42 % by weight.

Claim 43. (Currently amended) The cross joint of claim 1, wherein
the race portions are subjected to the roller burnishing for increasing a hardness of each surface of the race portions and for increasing a residual compressive stress immediately below each of said surfaces, and
a residual compressive stress at a depth of up to approximately 0.3 mm from each of the surfaces of the race portions subjected to the roller burnishing is larger than a residual compressive stress at a deeper portion thereof.

Claim 44. (Currently amended) The cross joint of claim 52 43, wherein the residual compressive stress at the depth of approximately 0.3 mm from each of the surfaces of the race portions subjected to the roller burnishing is equal to or larger than 800 MPa.

Claim 45. (Currently amended) The cross joint of claim 43, wherein the race portion does not include a portion with a convex corner to ~~enlarge a diameter thereof.~~

Claim 46. (Previously presented) The cross joint of claim 43, wherein the roller burnishing of the race portion increases a surface hardness of the race portion, and

at least one roller-burnished race portion comprises a hardness approximately equal to or larger than Hv700 from a surface to at least a depth of approximately 0.2 millimeters.

Claim 47. (Currently amended) The cross joint of claim 46, wherein the at least one roller-burnished race portion comprises a hardness of approximately equal to or larger than Hv700 from a surface to up to ~~at least~~ a depth of approximately 0.4 millimeters.

Claims 48-49. (Canceled).

Claim 50. (Currently amended) A cross joint comprising:
a cross shaft member comprising:
four shafts each comprising a neck portion and a race portion; and
shoulder portions between adjacent neck portions;
rolling members adapted to rotate on the race portions; and
bearing cups fitted to the respective shafts via the rolling members,
~~wherein each of the shoulder portions comprises a round-shaped section in a section including an axis center of the shaft,~~

wherein the round-shaped section has a center of curvature at an outer side of the cross shaft member,

wherein the round-shaped section does not comprise a concave angled corner, and wherein a residual compressive stress at a depth of up to at least 0.3 mm from each surface of the race portions and the shoulder portions subjected to the roller burnishing is equal to or larger than 800 Mpa.

Claim 51. (New) The cross joint of claim 1, wherein a residual compressive stress at a depth of 0.25 mm from each of the surfaces of the shoulder portions subjected to the roller burnishing is larger than 800 Mpa.

Claim 52. (New) The cross joint of claim 43, wherein a residual compressive stress at a depth of 0.25 mm from each of the surfaces of the shoulder portions subjected to the roller burnishing is larger than 800 Mpa.

Claim 53. (New) The cross joint of claim 1, wherein a residual compressive stress at a depth of approximately 0.1 mm from the roller burnished surface is larger than a residual compressive stress a depth of less than approximately 0.1 mm from the roller burnished surface.

Claim 54. (New) The cross joint of claim 1, wherein a residual compressive stress at a depth of approximately 0.2 mm from the roller burnished surface is larger than a residual compressive stress a depth of greater than approximately 0.2 mm from the roller burnished

surface.

Claim 55. (New) The cross joint of claim 1, wherein a residual compressive stress at a depth of approximately 0.01 mm from the roller burnished surface is less than a residual compressive stress at a depth of approximately 0.3 mm from the roller burnished surface.